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(54) Title: METHOD OF INDUCING AN ENHANCED IMMUNE RESPONSE AGAINST HIV

(57) Abstract: An efficient means of inducing an immune response against human immunodeficiency virus (HIV) utilizing specific prime-boost regimes is disclosed. The specific prime-boost regimes employ a heterologous prime-boost protocol employing recombinant adenoviral vectors of alternative and distinct serotypes comprising exogenous genetic material encoding a common HIV antigen. Vaccines administered into living vertebrate tissue in accordance with the disclosed regimes, preferably a mammalian host, such as a human or a non-human mammal of commercial or domestic veterinary importance, express the HIV-1 antigen (e.g., Gag), inducing a cellular immune response which specifically recognizes HIV-1. It is believed that the disclosed prime/boost regime will offer a prophylactic advantage to previously uninfected individuals and/or provide a therapeutic effect by reducing viral load levels within an infected individual, thus prolonging the asymptomatic phase of HIV-1 infection.

**INTERNATIONAL SEARCH REPORT**

International application No.

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**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : A61K 39/21  
US CL : 424/199.1, 204.1, 208.1; 435/235.1, 320.1

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 424/199.1, 204.1, 208.1; 435/235.1, 320.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	MORRAL et al., Administration of helper-dependent adenoviral vectors and sequential delivery of different vector serotype for long-term liver-directed gene transfer in baboons. Proceedings of the National Academy of Sciences, U.S.A. 1999 Vol. 96 pages 12816-12821, see page 12816, column 2, lines 10-11, Tables 1 and 2, and page 12819, column 1, lines 5-27.	15, 17- 25, 27- 30
Y	SHIVER et al., Replication-incompetent adenoviral vaccine vector elicits effective anti-immunodeficiency-virus immunity. Nature. 2002 Vol. 415, pages 331-335, see Table 1, and page 335, column 1.	1- 30
A	YOSHIDA T. et al., Activation of HIV-1-specific immune responses to an HIV-1 vaccine constructed from a replication-defective adenovirus vector using various combinations of immunization protocols. Clinical & Experimental Immunology June 2001 Volume 124 Issue 3 Page 445 - 452.	
Y,P	PATTERSON et al., Potent, persistent cellular immune responses elicited by sequential immunization of rhesus macaques with Ad5 host range mutant recombinants encoding SIV Rev and SIV Nef.DNA Cell Biol. 2002 Sep;21(9):627-35, see	1- 3,5- 15, 17- 25, 27- 30

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

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**INTERNATIONAL SEARCH REPORT****C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	HUANG Y et al., Human Immunodeficiency Virus Type 1-Specific Immunity after Genetic Immunization Is Enhanced by Modification of Gag and Pol Expression. Journal of Virology 2001 Vol. 75, pages 4947-4951, see Figure 3 and page 4950, column 1, lines 1-3.	4,16,26

**INTERNATIONAL SEARCH REPORT**

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**Continuation of B. FIELDS SEARCHED Item 3:**  
WEST, MEDLINE  
adenovirus, HIV, vaccine, boost, optimized, nef, pol, gag, vector